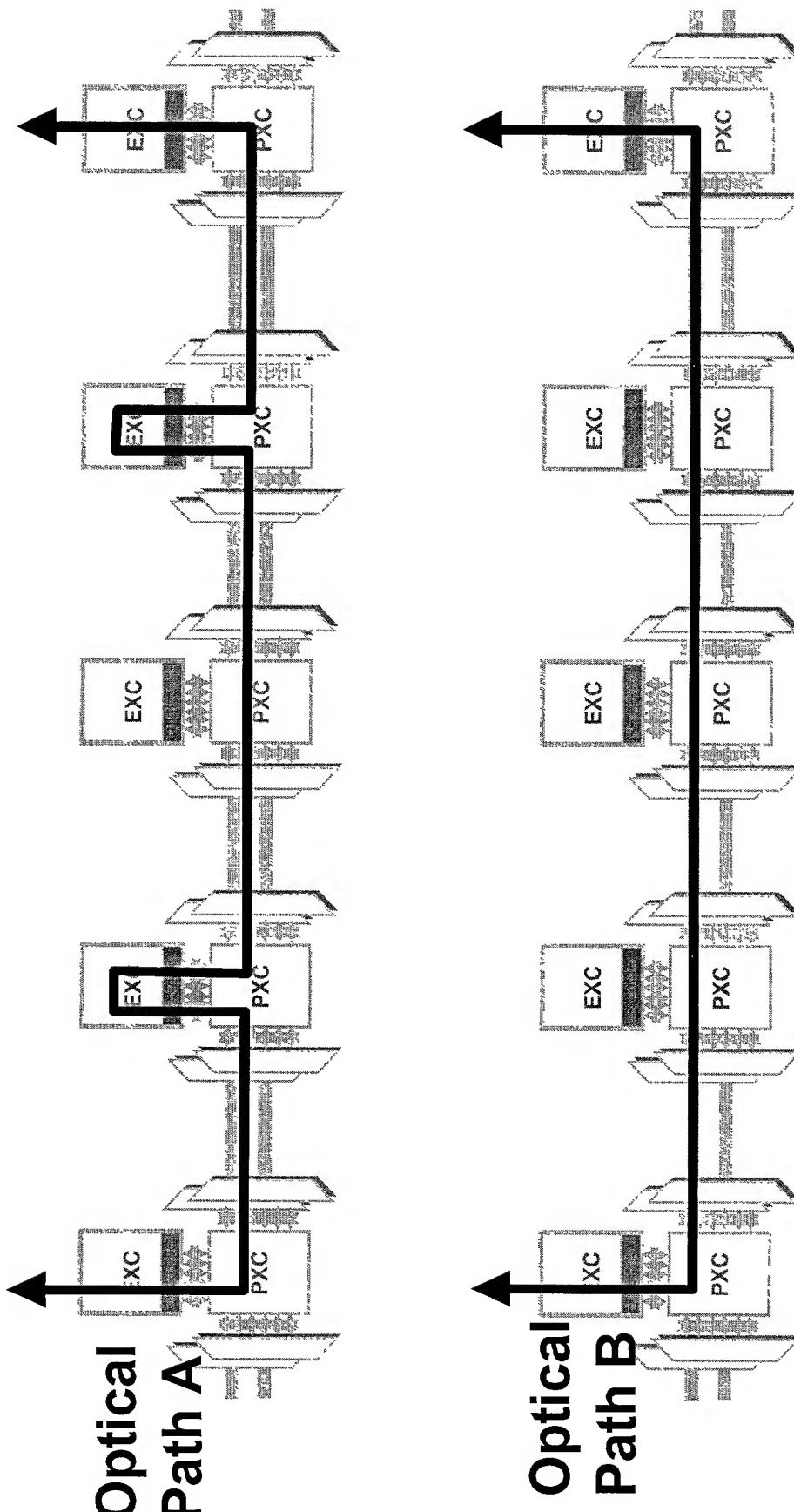
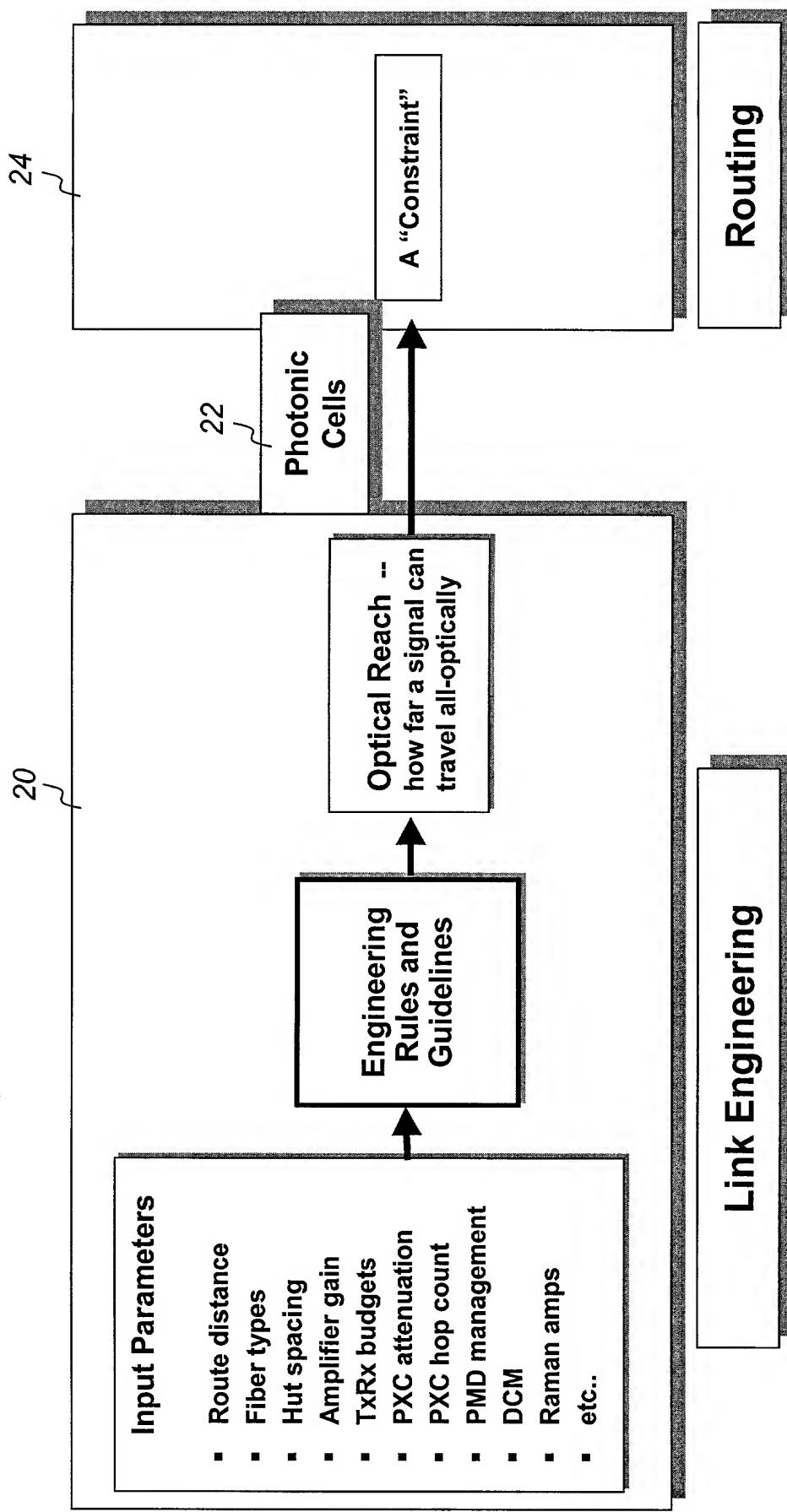


**Fig. 1**

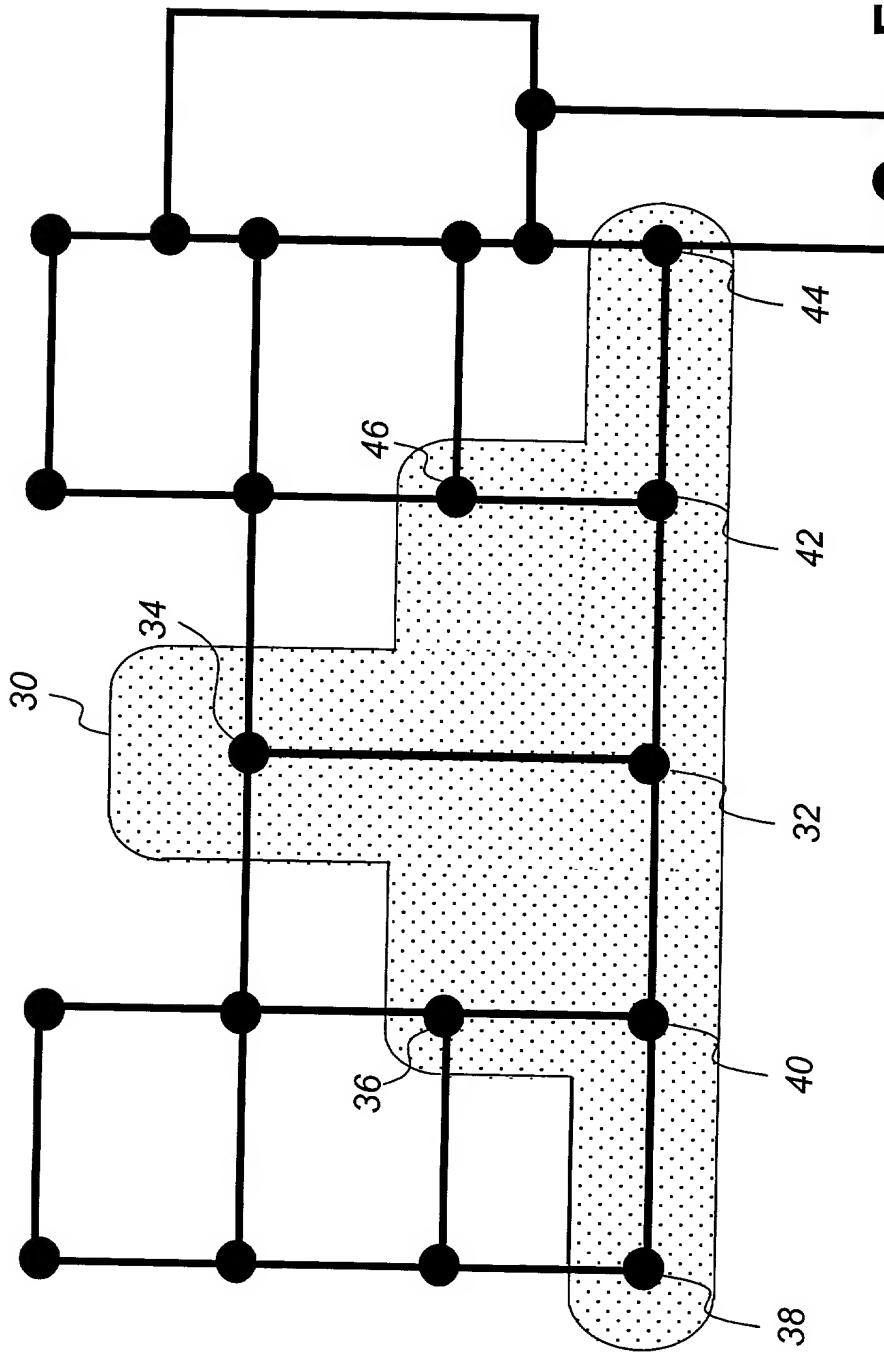
**Fig. 2**





**Fig. 3**

**Fig. 4**



Corollary 1  
Node 1 can reach all the nodes  
within Cell 1 photonically

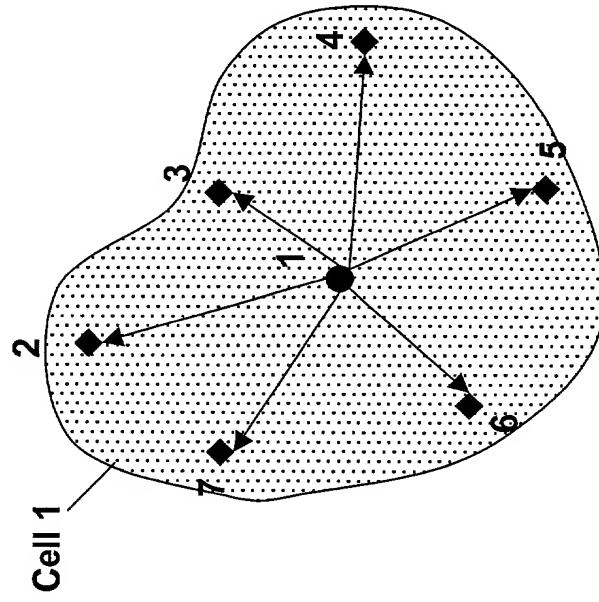


Fig. 5a

Corollary 2  
Node 1 is a cell member of others cells  
which have their base nodes inside Cell 1

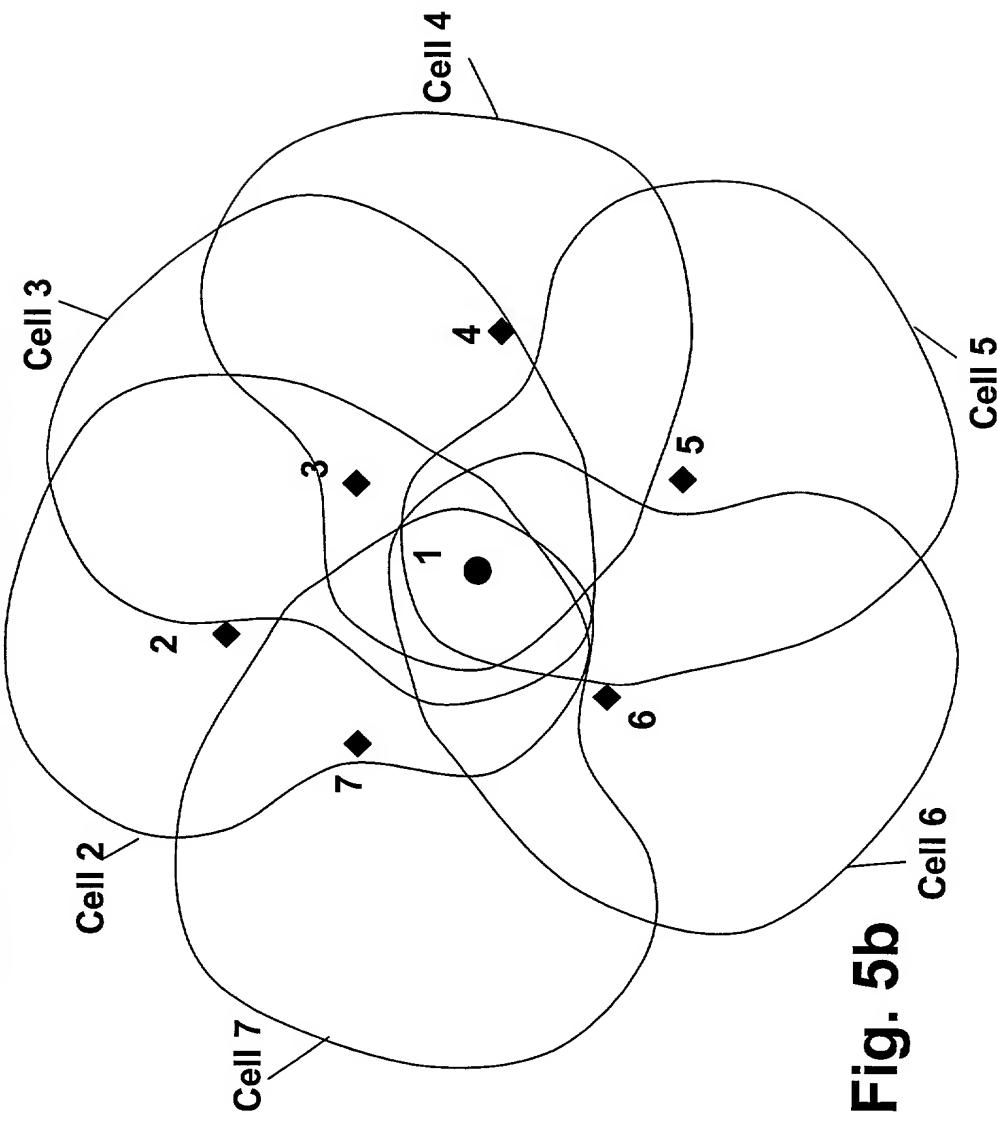
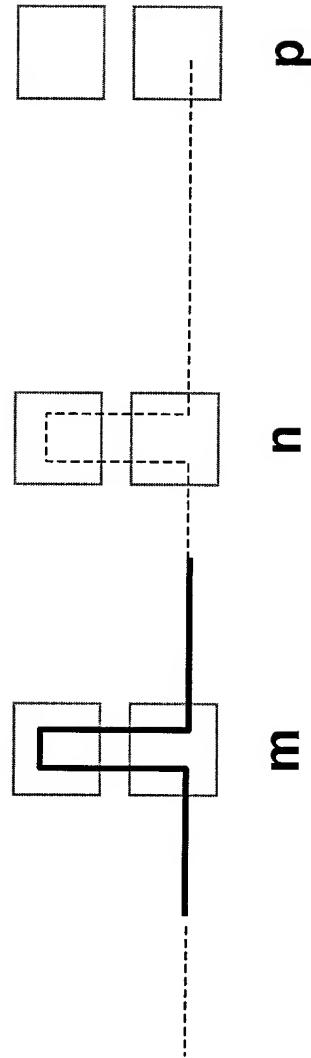
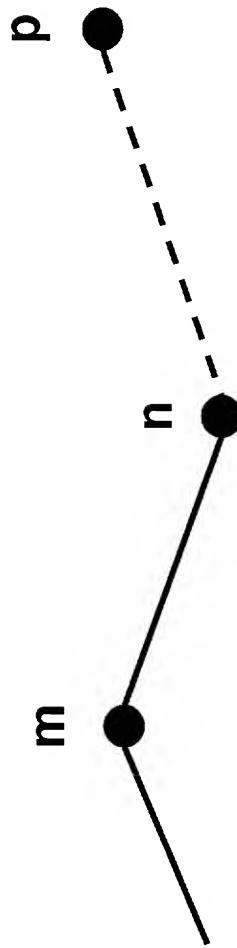


Fig. 5b

During routing, one would need to know whether OEO (signal regeneration) is required at node n if the previous sequence is .... m .

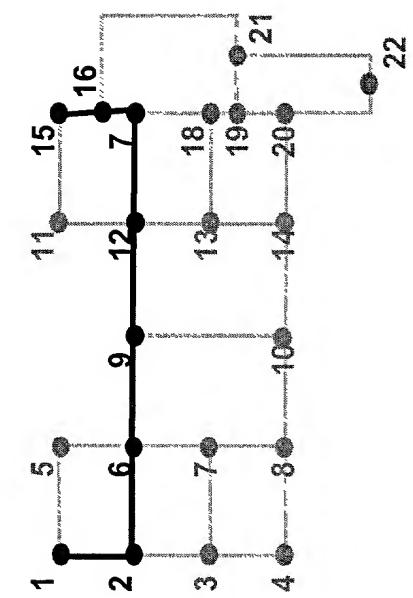


With Photonic Cells, a quick check would have the answer.

Node p a cell member of cell m?

If Yes - OEO is NOT required at node n  
If No - OEO is required at node n

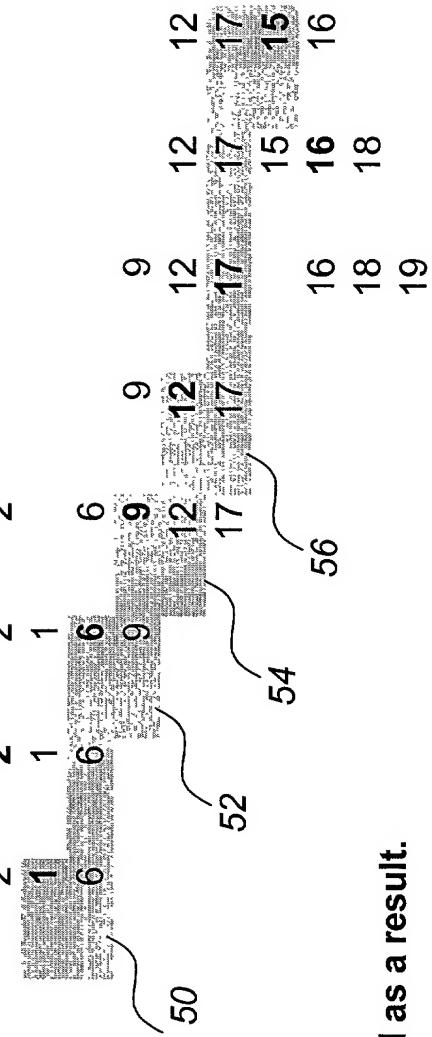
**A.** Assume a route is determined but the OEO sites have yet to be identified.



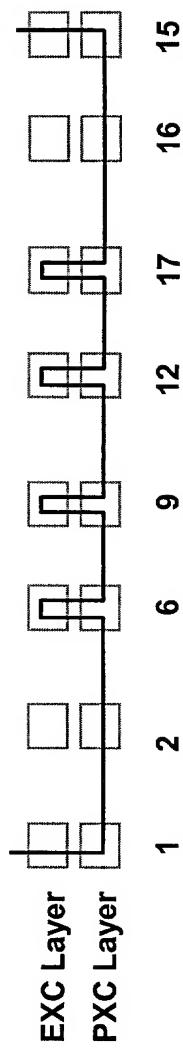
**B.** Using *Photonic Cells* can easily determine the sequence of OEO sites.

**Route under study**

**1 → 2 → 6 → 9 → 12 → 17 → 16 → 15**

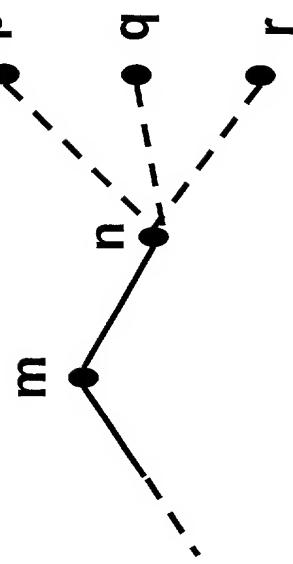


**C.** Optical path is determined as a result.



**Fig. 7**

**Fig. 8**



**Application example 2**

As an integral part of routing, OEO regeneration becomes one of the constraints.

The selection of the next hops would depend on whether OEO is required.

Photonic cells can quickly provide this information by checking the cell member lists.